

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A hydrogenation catalyst for hydrocarbon oil, ~~which~~
is produced by a process comprising:

impregnating a refractory inorganic oxide carrier with a solution containing a water-soluble metal compound of Group 4 of the Periodic Table so that it carries the metal compound, then further

impregnating with an aqueous solution containing at least one metal compound of Group 6 and at least one metal compound of Groups 8 to 10 of the Periodic Table so that it carries the metal compounds, and thereafter

heating it at a temperature not higher than 300 °C; wherein said refractory inorganic oxide carrier is alumina.

Claim 2 (Original): The hydrogenation catalyst for hydrocarbon oil as claimed in claim 1, wherein the metal compound of Group 4 of the Periodic Table is a titanium compound.

Claim 3 (Original): The hydrogenation catalyst for hydrocarbon oil as claimed in claim 2, wherein the titanium compound is a salt of a titanium-peroxohydroxycarboxylic acid.

Claim 4 (Currently Amended): A hydrogenation catalyst for hydrocarbon oil, ~~which~~
is produced by process comprising:

impregnating a refractory inorganic oxide carrier with an aqueous solution containing a salt of a titanium-peroxohydroxycarboxylic acid so that it carries the titanium compound, then further

impregnating with an aqueous solution containing at least one metal compound of Group 6 and at least one metal compound of Groups 8 to 10 of the Periodic Table so that it carries the metal compounds; wherein the refractory inorganic oxide is alumina.

Claim 5 (Cancelled).

Claim 6 (Previously Presented): The hydrogenation catalyst for hydrocarbon oil as claimed in claim 2, wherein the amount of titanium in terms of its oxide form falls between 1 and 15% by weight of the refractory inorganic oxide carrier.

Claim 7 (Previously Presented): The hydrogenation catalyst for hydrocarbon oil as claimed in claim 1, wherein the metal of Group 6 of the Periodic Table is molybdenum and the metal of Groups 8 to 10 of the Periodic Table is nickel.

Claim 8 (Currently Amended): The hydrogenation catalyst for hydrocarbon oil as claimed in claim 1, ~~which~~ further carries a phosphorus compound along with the metal compound of Group 6 and the metal compound of Groups 8 to 10 of the Periodic Table.

Claim 9 (Withdrawn): A method of hydrogenation of hydrocarbon oil, in which is used the hydrogenation catalyst of claim 1.

Claim 10 (Currently Amended): A method for producing a hydrogenation catalyst,
~~which comprises~~ comprising:

applying a water-soluble organic compound having a boiling point or a decomposition point of not lower than 150°C to a refractory inorganic oxide carrier, then

applying thereto a metal compound of Group 4 of the Periodic Table, and thereafter further applying thereto at least one metal compound of Group 6 and at least one metal compound of Groups 8 to 10 of the Periodic Table; wherein the refractory inorganic oxide carrier is alumina.

Claim 11 (Original): The method for producing a hydrogenation catalyst as claimed in claim 10, wherein the catalyst produced is for hydro-desulfurization.

Claim 12 (Currently Amended): A method for producing a hydrogenation catalyst,
~~which comprises~~ comprising:

applying a metal compound of Group 4 of the Periodic Table to a refractory inorganic oxide carrier, along with a water-soluble organic compound having a boiling point or a decomposition point of not lower than 150°C thereto, and thereafter further

applying thereto at least one metal compound of Group 6 and at least one metal compound of Groups 8 to 10 of the Periodic Table; wherein the refractory inorganic oxide carrier is alumina.

Claim 13 (Original): The method for producing a hydrogenation catalyst as claimed in claim 12, wherein the catalyst produced is for hydro-denitrogenation.

Claim 14 (Currently Amended): A method for producing a hydrogenation catalyst,
~~which comprises~~ comprising:

applying at least one metal compound of Group 6 and at least one metal compound of Groups 8 to 10 of the Periodic Table to a refractory inorganic oxide carrier, along with a water-soluble organic compound having a boiling point or a decomposition point of not lower than 150°C thereto, and thereafter further

applying thereto a metal compound of Group 4 of the Periodic Table; wherein the refractory inorganic oxide carrier is alumina.

Claim 15 (Original): The method for producing a hydrogenation catalyst as claimed in claim 14, wherein the catalyst produced is for hydro-dearomatization.

Claim 16 (Previously Presented): The method for producing a hydrogenation catalyst as claimed in claim 10, wherein a phosphorus compound is loaded on the refractory inorganic oxide carrier, along with the metal compound of Group 6 and the metal compound of Groups 8 to 10 of the Periodic Table thereto.

Claim 17 (Previously Presented): The method for producing a hydrogenation catalyst as claimed in claim 10, wherein the metal of Group 4 of the Periodic Table is titanium or zirconium.

Claim 18 (Previously Presented): The method for producing a hydrogenation catalyst as claimed in claim 10, wherein the metal of Group 6 of the Periodic Table is molybdenum or tungsten, and the metal of Groups 8 to 10 of the Periodic Table is cobalt or nickel.

Claim 19 (Cancelled).

Claim 20 (Currently Amended): The method for producing a hydrogenation catalyst as claimed in claim 10, wherein the water-soluble organic compound having a boiling point or a decomposition point of not lower than 150°C is at least one selected from the group consisting of diethylene glycol, triethylene glycol, polyethylene glycol and butanediol.

Claim 21 (Previously Presented): A hydrogenation catalyst produced in the method of claim 10.

Claim 22 (Withdrawn): A method of hydrogenation of hydrocarbon oil, in which is used the hydrogenation catalyst of claim 21.

Claim 23 (Withdrawn): A metal compound-loading refractory inorganic oxide carrier produced by impregnating a refractory inorganic oxide carrier with a metal compound and carrying the metal, in which the metal exists uniformly everywhere inside it.

Claim 24 (Withdrawn): A metal compound-loading refractory inorganic oxide carrier produced by impregnating a refractory inorganic oxide carrier with a metal compound and carrying the metal, of which the ratio, $x = F_m/F$, is at least 0.5 in the graph indicating the data of linear analysis of the metal atom in one direction obtained through electron probe microanalysis (EPMA) of the cross section of the carrier, and showing the relationship between the length, t , of the cross section in the cross direction of the carrier (t indicates the distance from one surface of the carrier) and the X-ray intensity, I , in which F indicates the integral value of the X-ray intensity $I(t)$ with t being the distance between one surface of the

carrier and the other surface thereof, and F_m indicates the integral value of the X-ray intensity $I_m(t)$ on the line tangential to the X-ray intensity curve at the minimum and smallest point of the curve, with t being also the distance between one surface of the carrier and the other surface thereof.

Claim 25 (Withdrawn): The metal compound-loading refractory inorganic oxide carrier as claimed in claim 23, wherein the refractory inorganic oxide carrier is γ -alumina.

Claim 26 (Withdrawn): The metal compound-loading refractory inorganic oxide carrier as claimed in claim 23, wherein the metal compound is a metal alkoxide.

Claim 27 (Withdrawn): The metal compound-loading refractory inorganic oxide carrier as claimed in claim 23, wherein the metal is of Group 4 of the Periodic Table.

Claim 28 (Withdrawn): The metal compound-loading refractory inorganic oxide carrier as claimed in claim 27, wherein the metal of Group 4 of the Periodic Table is titanium.

Claim 29 (Withdrawn): A method for producing the metal compound-loading refractory inorganic oxide carrier of claim 23, which comprises impregnating a refractory inorganic oxide carrier with an aqueous solution that contains a water-soluble organic compound having a boiling point or a decomposition point of not lower than 150°C, then drying it, and thereafter further impregnating with a solution of a metal compound.

Claim 30 (Withdrawn): A method for producing the metal compound-loading refractory inorganic oxide carrier of claim 26, which comprises impregnating a refractory

inorganic oxide carrier with an aqueous solution that contains a water-soluble organic compound having a boiling point or a decomposition point of not lower than 150°C, then drying it, and thereafter further dipping it in an alcoholic solution of a metal compound, metal alkoxide.

Claim 31 (Withdrawn): A hydrogenation catalyst having at least one metal of Group 6 and at least one metal of Groups 8 to 10 of the Periodic Table supported on the metal compound-loading refractory inorganic oxide carrier of claim 23.

Claim 32 (Withdrawn): A hydrogenation catalyst having at least one metal of Group 6 and at least one metal of Groups 8 to 10 of the Periodic Table supported on the metal compound-loading refractory inorganic oxide carrier of claim 23, which is heated at a temperature not higher than 300°C.

Claim 33 (Withdrawn): A method of hydro-desulfurization of hydrocarbon oil, in which is used the hydrogenation catalyst of claim 31.

Claim 34 (Cancelled).

Claim 35 (Previously Presented): The hydrogenation catalyst for hydrocarbon oil as claimed in claim 3, wherein the amount of titanium in terms of its oxide form falls between 1 and 15 % by weight of the refractory inorganic oxide carrier.

Claim 36 (Previously Presented): The hydrogenation catalyst for hydrocarbon oil as claimed in claim 4, wherein the amount of titanium in terms of its oxide form falls between 1 and 15 % by weight of the refractory inorganic oxide carrier.

Claim 37 (Previously Presented): The hydrogenation catalyst for hydrocarbon oil as claimed in claim 4, wherein the metal of Group 6 of the Periodic Table is molybdenum and the metal of Groups 8 to 10 of the Periodic Table is nickel.

Claim 38 (Previously Presented): The hydrogenation catalyst for hydrocarbon oil as claimed in claim 4, which carries a phosphorus compound along with the metal compound of Group 6 and the metal compound of Groups 8 to 10 of the Periodic Table.

Claim 39 (Previously Presented): A method of hydrogenation of hydrocarbon oil, in which is used the hydrogenation catalyst of claim 4.

Claim 40 (Previously Presented): The method for producing a hydrogenation catalyst as claimed in claim 12, wherein a phosphorus compound is loaded on the refractory inorganic oxide carrier, along with the metal compound of Group 6 and the metal compound of Groups 8 to 10 of the Periodic Table thereto.

Claim 41 (Previously Presented): The method for producing a hydrogenation catalyst as claimed in claim 14, wherein a phosphorus compound is loaded on the refractory inorganic oxide carrier, along with the metal compound of Group 6 and the metal compound of Groups 8 to 10 of the Periodic Table thereto.

Claim 42 (Previously Presented): The method for producing a hydrogenation catalyst as claimed in claim 12, wherein the metal of Group 4 of the Periodic Table is titanium or zirconium.

Claim 43 (Previously Presented): The method for producing a hydrogenation catalyst as claimed in claim 14, wherein the metal of Group 4 of the Periodic Table is titanium or zirconium.

Claim 44 (Previously Presented): The method for producing a hydrogenation catalyst as claimed in claim 12, wherein the metal of Group 6 of the Periodic Table is molybdenum or tungsten, and the metal of Groups 8 to 10 of the Periodic Table is cobalt or nickel.

Claim 45 (Previously Presented): The method for producing a hydrogenation catalyst as claimed in claim 14, wherein the metal of Group 6 of the Periodic Table is molybdenum or tungsten, and the metal of Groups 8 to 10 of the Periodic Table is cobalt or nickel.

Claims 46-47 (Cancelled).

Claim 48 (Currently Amended): The method for producing a hydrogenation catalyst as claimed in claim 12, wherein the water-soluble organic compound having a boiling point or a decomposition point of not lower than 150°C is at least one selected from the group consisting of diethylene glycol, triethylene glycol, polyethylene glycol and butanediol.

Claim 49 (Currently Amended): The method for producing a hydrogenation catalyst as claimed in claim 14, wherein the water-soluble organic compound having a boiling point

or a decomposition point of not lower than 150°C is at least one selected from the group consisting of diethylene glycol, triethylene glycol, polyethylene glycol and butanediol.

Claim 50 (Previously Presented): A hydrogenation catalyst produced in the method of claim 12.

Claim 51 (Previously Presented): A hydrogenation catalyst produced in the method of claim 14.

Claim 52 (Previously Presented): The metal compound-loading refractory inorganic oxide carrier as claimed in claim 24, wherein the refractory inorganic oxide carrier is - alumina.

Claim 53 (Previously Presented): The metal compound-loading refractory inorganic oxide carrier as claimed in claim 24, wherein the metal compound is a metal alkoxide.

Claim 54 (Previously Presented): The metal compound-loading refractory inorganic oxide carrier as claimed in claim 24, wherein the metal is of Group 4 of the Periodic Table.

Claim 55 (Previously Presented): A method for producing the metal compound-loading refractory inorganic oxide carrier of claim 24, which comprises impregnating a refractory inorganic oxide carrier with an aqueous solution that contains a water-soluble organic compound having a boiling point or a decomposition point of not lower than 150°C, then drying it, and thereafter further impregnating with a solution of a metal compound.

Claim 56 (Previously Presented): A method for producing the metal compound-loading refractory inorganic oxide carrier of claim 24, which comprises impregnating a refractory inorganic oxide carrier with an aqueous solution that contains a water-soluble organic compound having a boiling point or a decomposition point of not lower than 150°C, then drying it, and thereafter further dipping it in an alcoholic solution of a metal compound, metal alkoxide.

Claim 57 (Previously Presented): A hydrogenation catalyst having at least one metal of Group 6 and at least one metal of Groups 8 to 10 of the Periodic Table supported on the metal compound-loading refractory inorganic oxide carrier of claim 24.

Claim 58 (Previously Presented): A hydrogenation catalyst having at least one metal of Group 6 and at least one metal of Groups 8 to 10 of the Periodic Table supported on the metal compound-loading refractory inorganic oxide carrier of claim 24, which is heated at a temperature not higher than 300°C.

Claim 59 (Previously Presented): A method of hydro-desulfurization of hydrocarbon oil, in which is used the hydrogenation catalyst of claim 32.